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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/051,310	01/22/2002	Hiroyuki Nakamura	33216M534833	5209

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EXAMINER
SUMMONS, BARBARA

ART UNIT	PAPER NUMBER
2817	

DATE MAILED: 07/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
10/051,310	Nakamura et al.
Examiner	**Group Art Unit**
Barbara Summons	2817

—Th MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 (three) MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

☒ Responsive to communication(s) filed on 4/23/03.

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

☒ Claim(s) 1-40 is/are pending in the application.

Of the above claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1, 2, and 39 is/are rejected.

☒ Claim(s) 3-38 and 40 is/are objected to.

☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Pri rity under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).

☐ All ☐ Some* ☐ None of the:

☐ Certified copies of the priority documents have been received.

☐ Certified copies of the priority documents have been received in Application No. _____.

☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____.

Atta hment(s)

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☒ Notic of Reference(s) Cited, PTO-892

☐ Notice of Draftsperson's Pat nt Drawing R vi w, PTO-948

☐ Interview Summary, PTO-413

☐ Notice of Informal Patent Application, PTO-152

☐ Oth r _____

Office Acti n Summary

DETAILED ACTION

Interview Summary/Withdrawal of Rejections

1. It was agreed in the Interview Summary of the 3/13/03 interview, that the amendments which were proposed, and have since been made, by Applicants would overcome the prior art of record and correct § 112 issues. Therefore, all previous rejections have been overcome and are withdrawn.

However, a subsequent search has revealed new references resulting in the new rejections that follow.

2. Because claim 2 was originally indicated as being allowable if rewritten in independent form, but is now rejected, this Office action will not be made Final.

Terminal Disclaimer

3. The terminal disclaimer filed on 4/23/03 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Patent No. 6,351,196 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1, 2, and 39 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Mitchell U.S. 3,801,935 in view of De Vries U.S. 3,659,231.

Fig. 1 of Mitchell discloses an interdigital transducer (IDT) 22 comprising: a piezoelectric substrate 21; an IDT electrode 22 having a pair of upper bus bar electrode (30,34) and lower bus bar electrode (31,33) placed facing each other on the substrate and a plurality of electrode fingers led out from either the upper or lower bus bar electrode toward the other bus bar electrode; and wherein the IDT electrode 22 is constructed of a plurality of divisional IDT electrodes which includes at least three divisional IDT electrodes 26, 27, and 28. Regarding claim 2, the divisional IDT electrodes 26 and 28 are connected in series (see e.g. col. 4, lns. 6-7) and are connected in parallel to the divisional IDT electrode 27. In other words, the transducer structure of IDT 22 is the same as Applicants' Fig. 1 with the two grounds connected. Regarding claim 39, the transversal filter of Mitchell is considered to be a communication apparatus wherein the launching IDT 22 is a transmission circuit that outputs transmission waves; and the receiving IDT 23 is a reception circuit that receives reception waves launched from the launching IDT 22, and wherein

both the transmission circuit/launching IDT 22 and the reception circuit/receiving IDT 23 have the structure of claims 1 and 2 (i.e. are IDTs with at least 3 divisional IDT electrodes).

However, Mitchell does not explicitly state that the divisional IDTs 26-28 of IDT 22 are connected to balanced type terminals (i.e. at terminals 36 and 37). Mitchell does disclose that is known to connect such surface acoustic wave (SAW) transversal filters to amplifiers (see col. 1, lns. 25-30) and divides the IDT into the divisional IDTs to facilitate such a connection.

Additionally, De Vries is cited as evidence that such amplifiers connected to SAW transversal filters are typically differential amplifiers 17 (see e.g. Fig. 1) with balanced input and output terminals connecting to the input/output IDTs of SAW transversal filters.

Consequently, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the divisional electrode IDT 22/26-28) of Mitchell (Fig. 2), if even necessary, such that the terminals 36 and 37 would have been a balanced type terminal, because Mitchell explicitly suggested connecting such a device to an amplifier (see col. 1, lns. 25-30) and such amplifiers connected to SAW transversal filters would have been known to include differential amplifiers having balanced input/output terminals as suggested by the exemplary teaching of De Vries (see Fig. 1).

Allowable Subject Matter

6. Claims 3-38 and 40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record does not disclose or fairly suggest an IDT with at least three divisional IDT electrodes wherein "the ratio in the number of electrode fingers" in the "plurality of divisional IDT electrodes is adjusted beforehand so as to have a predetermined impedance value" (see claim 3). Mitchell does disclose making the impedance of the first and third divisional IDT electrodes 26 and 28 be equal (see col. 3, lns. 30-39 and col. 4, lns. 36-43), but does not mention the number of electrode fingers, or a ratio thereof, in each of the divisional IDT sections 26-28. Furthermore, Mitchell in no way discloses or suggests the use of its divisional IDT electrode in a SAW filter that is a "longitudinally coupled mode type...filter" (see claim 23, lns. 8-10).

Response to Arguments

8. Applicants put forth no arguments because claims 1 and 2 were amended to overcome the prior art of record. Any arguments would have been moot in view of the new grounds of rejection.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Feldmann et al. FR 2 484 150 is cited as further evidence of SAW transversal filters being connected to differential amplifiers with balanced terminals (see the abstract, and Figs. 1 and 2b).

Adler et al. U.S. 3,600,710 discloses an IDT with three divisional IDT electrodes (Fig. 3).

Inoue et al. U.S. 4,143,343 discloses IDTs with more than three divisional IDT electrodes (see Figs. 13-16).

Kadota U.S. 4,384,264 discloses an IDT with more than three divisional IDT electrodes (see Fig. 15).

Solie U.S. 4,746,882 discloses IDTs with more than three divisional IDT electrodes (see Fig. 4).

10. Any inquiry concerning this communication should be directed to Barbara Summons at telephone number (703) 308-4947, FAX no. (703) 308-7724, receptionist's no. (703) 308-0956, Supervisory Examiner Bob Pascal (703) 308-4909.

Barbara Summons

Barbara Summons
Primary Examiner
Art Unit 2817

bs
June 27, 2003